

# Aging Watershed Structures



## A concern for Louisiana

*“By the year 2009, fourteen dams in Louisiana will have reached the end of their designed life. Some of the dams will need structural repair. The local sponsors who, in most cases, have maintained the dams, don’t have the funds and other resources needed for major dam renovation in these watershed areas.”*

Donald W. Gohmert  
State Conservationist  
Natural Resources Conservation Service

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## Benefits of Watershed Structures

### Flood Control

By temporarily detaining runoff and safely releasing it downstream.

### Improved Water Quality

By settling out contaminants and sediment in the reservoir, thus protecting downstream streams and rivers.

### Water Supply

By storing the water during rainy seasons for use irrigation or urban use.

### Drinking Water

By storing water in the reservoir for municipal and industrial use.

### Fish and Wildlife Habitat

By improving wetland and vegetative habitat that creates better shelter and food sources.

### Habitat to Threatened and Endangered Species

By creating special features to enhance and protect threatened and endangered species.

### Wetland Habitat

By creating vegetative riparian, or shoreline, areas along the upper reaches of the reservoir.

### Restoration of Riparian Habitat

By providing protection of downstream channel areas that allow vegetative growth and improvement of the riparian areas.

### Recreation for Local Residents

By providing a source of quality fishing, hunting, picnicking, and other recreational activities.

### Fire Protection in Rural Communities

By providing a supply of water to be used for fire fighting.

#### On the Cover:

An earthen dam at Cotile Reservoir near Alexandria, Louisiana.

This watershed dam was constructed by the Natural Resources Conservation Service (formerly the Soil Conservation Service) in 1965.

The structure has a 50-year life span which ends in 2015.

**W**atershed structures are small watershed dams built in Louisiana and throughout the nation on small tributaries to hold back water during heavy rains to protect areas of land from flooding. These dams have been very effective in flood control. The dams also provide water for irrigation and recreation. Louisiana residents enjoy Kincaid Lake, Cotile Lake, Indian Creek Lake, Cypress Black Reservoir, and Black Bayou Reservoir as a result of watershed projects.



## Time Takes Its Toll

Many watershed project areas are now in a far different setting than when they were originally constructed. Population has grown, development has occurred upstream and downstream from the small dams, land use changes have taken place, sediment pools have filled, structural components have deteriorated, and many do not meet state dam safety regulations that have been enacted and revised with more stringent requirements since the dams were built.

## Watershed Dams in Louisiana

Bayou Bouef-Indian Creek, Rapides Parish  
 Bayou Bouef-Kincaid Lake, Rapides Parish  
 Bayou Dupont-Structure 2, Sabine Parish  
 Bayou Dupont-Structure 4, Sabine Parish  
 Bayou Dupont-Structure 7, Sabine Parish  
 Bayou Dupont-Structure 8, Natchitoches Parish  
 Bayou Dupont-Structure 9, Natchitoches Parish  
 Bayou Dupont-Structure 10, Sabine Parish  
 Bayou Dupont-Structure 11, Sabine Parish  
 Bayou Dupont-Structure 12, Sabine Parish  
 Bayou Dupont-Structure 13, Sabine Parish  
 Bayou Dupont-Structure 14, Natchitoches Parish  
 Bayou Dupont-Structure 15, Natchitoches Parish  
 Bayou Dupont-Structure 17, Natchitoches Parish  
 Bayou Dupont-Structure 18, Natchitoches Parish  
 Bayou Dupont-Structure 19, Natchitoches Parish  
 Bayou Dupont-Structure 20, Natchitoches Parish  
 Bayou Dupont-Structure 22, Natchitoches Parish

Bayou Rapides-Cotile Lake, Rapides Parish  
 Bear Creek-Structure 1, Allen Parish  
 Bear Creek-Structure 2, Allen Parish  
 Bear Creek-Structure 3, Allen Parish  
 Cypress Black Bayou-Structure 1, Bossier Parish  
 Cypress Black Bayou-Structure 2, Bossier Parish  
 Lower Bayou Toulon, Bienville Parish  
 Pleasant Valley-Structure 1, Washington Parish  
 Pleasant Valley-Structure 2, Washington Parish  
 Pleasant Valley-Structure 3, Washington Parish  
 Pleasant Valley-Structure 4, Washington Parish  
 Pleasant Valley-Structure 5, Washington Parish  
 Upper Bayou Nezpique-Structure 3, Evangeline Parish  
 Upper Bayou Nezpique-Structure 6, Evangeline Parish  
 Upper Bayou Nezpique-Structure 7, Evangeline Parish  
 Upper West Fork Cypress-Site 1, Bossier Parish  
 Upper West Fork Cypress-Site 2, Bossier Parish  
 Upper West Fork Cypress-Site 3, Bossier Parish



The watershed dams have created reservoirs that provide recreation, irrigation water, and wildlife habitat.

The Natural Resources Conservation Service (NRCS) in Louisiana has assisted local sponsors and units of government with planning, design, and construction of 36 large dams. Over the past five decades, these dams have helped provide flood protection, irrigation water, and recreational opportunities.



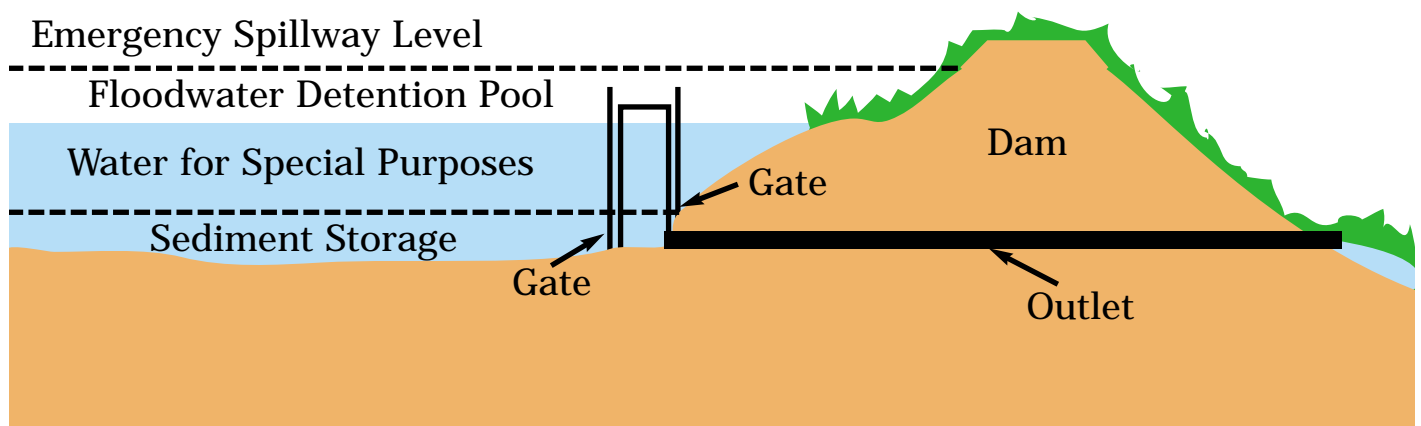


## Public Law 83-566

The multipurpose dams built in Louisiana were constructed under the Watershed Protection and Flood Prevention Act of 1954. NRCS is the agency that administers watershed projects for the United States Department of Agriculture under Public Law 83-566. These dams helped urban and rural communities protect, improve, and develop their water and land resources.

In Louisiana, thirty-six dams would be eligible for rehabilitation funding under legislation introduced in the United States Congress. H.R. 728, Small Watershed Rehabilitation Amendments of 1999, and S.1762, Small Watershed Rehabilitation Act of 1999, would extend the life of dams and upgrade dams to meet state dam safety laws.

## Multiple-Purpose Watershed Reservoir Typical Cross-Section





All of the dams built in Louisiana under Public Law 566 created reservoirs that were multipurpose. The dams were built on upstream tributaries to hold back water during heavy rains and to ensure effective water management.

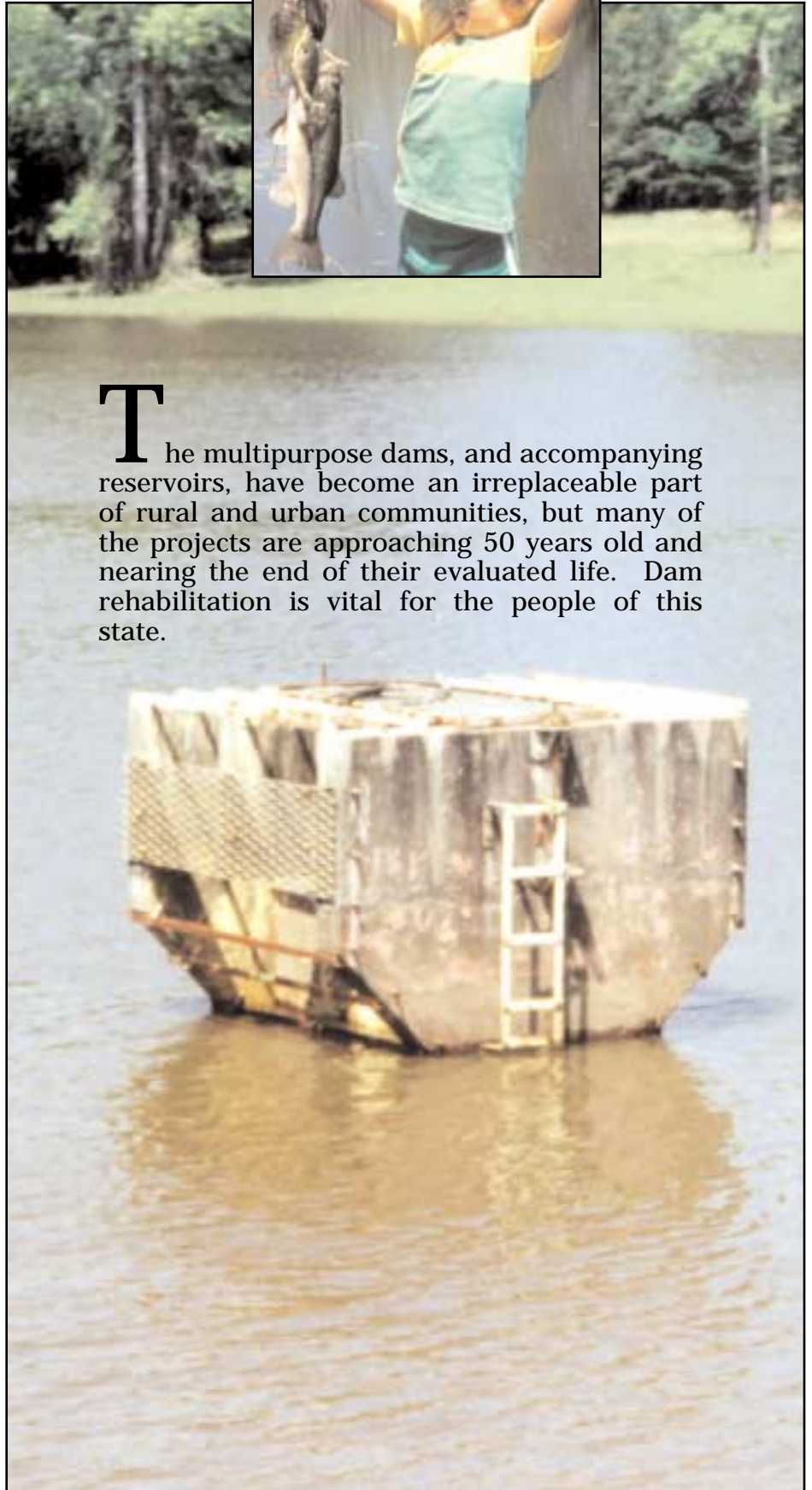
Soil and Water Conservation Districts and parish governments were local sponsors of the watershed projects. While the sponsors are responsible for the normal operations and maintenance of these structures, time and the elements have taken its toll on the benefits provided. The local sponsors do not have the funds and other resources for the major structural renovation necessary to bring them up to today's needs and standards.

## Renovation Costs

The original installation cost of the thirty-six watershed structures in Louisiana totaled approximately \$16 million. Today, replacement costs for these structures exceeds \$71 million. Local sponsors do not have funds available to address dam renovation needs.



The multipurpose dams, and accompanying reservoirs, have become an irreplaceable part of rural and urban communities, but many of the projects are approaching 50 years old and nearing the end of their evaluated life. Dam rehabilitation is vital for the people of this state.





**W**hile there are many challenges ahead, the future of watershed projects (dam rehabilitation) rests with the people.

Local people and state and federal agencies have worked together for over 50 years to build these dams. Now, it is time to start planning how to deal with these aging watershed dams to ensure they continue to provide the benefits they have provided to so many people.

There are many opportunities to reinvest in aging watershed projects. Extending the life of structures and addressing safety and health issues are just two examples.



## What's at Stake

Watershed structures reduce flooding to prime farmland, highways, communities, and residences; provide water for irrigation; provide recreational opportunities; and provide wildlife habitat. They are an integral part of communities across the state and affecting thousands of people's lives every day.



*“The fact that many of our dams are reaching the end of their designed life is a growing concern for our state. Dam repair, safety and health, and the money it will take to repair the structures is of vital importance to many Louisiana people.”*

**Don Gohmert**  
State Conservationist  
Natural Resources Conservation Service



## A National Perspective Questions and Answers

**Q.** How many small dams have been installed by communities with the assistance of the Natural Resources Conservation Service watershed protection programs?

**A.** More than 10,000 small dams have been installed in 46 states since 1948.

**Q.** How old are the small watershed dams?

**A.** The average age of the 10,000 watershed dams in the nation is 30 years old. Over 250 dams are more than 45 years old (almost 50 are greater than 50 years old). Within the next 10 years, more than 1,300 dams will reach 50 years old.

**Q.** What happens when a dam reaches the end of its life span?

**A.** Time takes its toll on dams. Reservoirs fill with sediment, metal and concrete deteriorate, land use conditions upstream from the dam change and increase the volume of water being delivered to the site, and many do not meet current dam safety requirements.

**Q.** Who planned, designed, and constructed the dams?

**A.** Local communities, with technical and financial assistance from the Natural Resources Conservation Service (formerly the Soil Conservation Service).

**Q.** Who owns the dams?

**A.** Local communities, who are the sponsors of the watershed projects.

**Q.** What level of flood protection do most small dams provide?

**A.** Most dams provide protection of downstream areas from storms that occur less than once every 25 years.

**Q.** What happens when a greater storm event occurs?

**A.** Each dam is designed with an auxiliary spillway constructed around one end of the dam that safely conveys excess flow around the dam, thus protecting it from overtopping and failure.

**Q.** How long were the dams designed to function?

**A.** The majority of the 10,000 dams were designed with a 50-year design life.

**Q.** What is the typical size of these small dams?

**A.** Generally, small watershed dams are between 25 and 60 feet in height. These dams create lakes that range in size from a few acres to several hundred acres in size.

**Q.** Who is responsible for the annual operations and maintenance of the small dams?

**A.** Local communities, who are the sponsors of the watershed project.

**Q.** When a small dam reaches the end of its life span, what options do local communities have?

**A.** Dams can be rebuilt or rehabilitated so they can function for a long time in the future (100 years or more). General options include raising the dam to provide additional storage or dredging the sediment and replacing metal components. In some cases where flood control is no longer needed downstream, the dam can be removed and the site restored to natural conditions to the extent possible.

# Natural Resources Conservation Service

For more information on watershed structures in Louisiana, the watershed program, Public Law 566, or the Natural Resources Conservation Service, please contact:

Donald W. Gohmert  
State Conservationist  
USDA Natural Resources Conservation Service  
3737 Government Street  
Alexandria, Louisiana 71302  
Telephone: (318) 473-7751  
Fax: (318) 473-7682  
e-mail: [don.gohmert@la.usda.gov](mailto:don.gohmert@la.usda.gov)

Visit our web page at <http://www.la.nrcs.usda.gov>

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